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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,558	01/22/2002	Steffen Hofacker	Mo6676/LeA 34,925	7309

157 7590 07/07/2005

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EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,558

Applicant(s)

HOFACKER ET AL

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The prior art rejections have been altered to reflect the amended claims.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over BASF as evidenced by Kubitza and in view of Bayer and vice versa, and further in view of either *Ullmann's Encyclopedia of Industrial Chemistry* or Lewis.
4. From a prior Office action:

BASF teaches two-component coating compositions for aluminum substrates comprising a binder component and hardener component (abstract). The binder component must have at least one active hydrogen-containing compound, suggesting a resin reactive toward isocyanate groups (p. 4 line 32-p. 5 line 6). The hardener component comprises an isocyanate and a silane oligomer (p. 7 lines 2-4). Suitable isocyanates have preferred functionalities of 3-4 (p. 7 lines 24-32), where biurets of hexamethylene diisocyanate are most preferred (p. 7 lines 18-23). Kubitza teaches that conventional biurets of HDI have an isocyanate content of 23.5% by weight and a functionality of greater than 3 (col. 4 lines 55-62). Thus, the preferred use of such compounds in BASF suggests the applicant's claimed polyisocyanate. The silane oligomer is a reaction product of the isocyanate with a coupling agent, where the coupling agent fits the applicant's formula (I) of claims 2-5 (p. 9, all). The two-component coatings of BASF are preferably applied to untreated aluminum as a primer coating for other coatings (p. 12, lines 6-16), and the examples show the application of at least two organic coatings covering the primer coating (examples 3-4).

BASF and Kubitza apply as above, teaching the application of a primer to various substrates, including metal, glass, and plastics (p. 11 lines 28-32). Although BASF teaches the use of top coatings on the primer layers, the reference does not teach the applicant's claimed modified inorganic layer [or the application of the coatings to polycarbonate substrates]. Bayer teaches coatings comprising a carbosiloxane fitting the applicant's formula (III) (p. 4 line 19-p. 5 line 11). Preferred compounds also fit the applicant's claim 9 limitation of formula (III) (p. 6 lines 4-14). The coatings are suitable for improving scratch resistance to substrates including polycarbonates and poly(methyl)methacrylates (p. 14 lines 10-14). Other substrates include metals and glass (p. 14 line 27-p. 15 line 2). Bayer specifically teaches that the adhesion of the coatings may be improved by priming the substrates and that the coatings serve as a top coating to base polyurethane coatings (p. 14 lines 16-25). Therefore, it is the examiner's position that it would have been prima

facie obvious to use the coatings of Bayer as a top coating in the invention of BASF to improve the scratch resistance of the prepared articles. Also, since BASF teaches application to polymeric substrates, it is the examiner's position that it would have been prima facie obvious to apply the coatings to polycarbonate or poly(methyl)methacrylate substrates by Bayer's teaching to provide transparent articles with improved scratch resistance.

Additionally, Bayer applies as above, teaching polyurethane base coatings with modified inorganic top coatings. The coatings are useful on polycarbonate substrates. However, the reference does not teach the specific claimed polyurethane base coatings. BASF applies as above, teaching polyurethane base coatings with alkoxysilyl groups. The coatings are useful on plastic substrates and have improved adhesion (abstract). Therefore, it is the examiner's position that it would have been prima facie obvious to employ the primer or base coating of the BASF invention in the structures of the Bayer invention to form coatings having improved adhesion.

5. The BASF reference teaches that the coatings preferably contain solvents or diluents, including aromatics, naphthas, acetates, ethers, esters, ketones, ether esters, and mixtures thereof (p. 11 lines 8-11). Many of the claimed solvents fall are encompassed by the generic recitation of the reference; however, the specific compounds are not noted. *Ullmann's Encyclopedia of Industrial Chemistry* teaches the classes of solvents and some of the most commonly used solvents of those classes. The claimed solvents are noted as conventionally used solvents, and many of the descriptions of solvents teach that they are conventionally used in coatings and paints. It is the examiner's position that it would have been prima facie obvious to use the conventional solvents taught by *Ullmann's Encyclopedia of Industrial Chemistry* to form primers with equally improved adhesion promoting properties. Also, Lewis teaches silane-containing hardcoating compositions, where tail solvents are used to increase blush resistance, reduce internal stress, and improve adhesion to polycarbonate substrates (abstract). The most preferred tail solvent is diacetone alcohol, which is miscible with the siloxane backbone and increases adhesion to polycarbonate (col. 7 lines 2-30). Thus, it is the examiner's position that it would have been prima facie

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obvious to use diacetone alcohol in the primer compositions of the combined invention to improve adhesion of the silane-containing materials to polycarbonate.

6. Claims 1-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over BASF as evidenced by Kubitza and in view of Mager et al., and further in view of Bayer and either *Ullmann's Encyclopedia of Industrial Chemistry* or Lewis.

7. From a prior Office action:

BASF teaches two-component coating compositions for aluminum substrates comprising a binder component and hardener component (abstract). The binder component must have at least one active hydrogen-containing compound, suggesting a resin reactive toward isocyanate groups (p. 4 line 32-p. 5 line 6). The hardener component comprises an isocyanate and a silane oligomer (p. 7 lines 2-4). Suitable isocyanates have preferred functionalities of 3-4 (p. 7 lines 24-32), where biurets of hexamethylene diisocyanate are most preferred (p. 7 lines 18-23). Kubitza teaches that conventional biurets of HDI have an isocyanate content of 23.5% by weight and a functionality of greater than 3 (col. 4 lines 55-62). Thus, the preferred use of such compounds in BASF suggests the applicant's claimed polyisocyanate. The silane oligomer is a reaction product of the isocyanate with a coupling agent, where the coupling agent fits the applicant's formula (I) of claims 2-5 (p. 9, all). The two-component coatings of BASF are preferably applied to untreated aluminum as a primer coating for other coatings (p. 12, lines 6-16), and the examples show the application of at least two organic coatings covering the primer coating (examples 3-4).

BASF and Kubitza apply as above, teaching the application of a primer composition to aluminum substrates for automotive body panels (p. 11 lines 28-32). Although BASF teaches the use of top coatings on the primer layers, the reference does not teach the applicant's claimed modified inorganic layer. Mager teaches coating compositions suitable for plastics, metals, and glass, where the coatings comprise a carbosiloxane fitting the applicant's formula (III) (abstract). Exemplified compounds also fit the applicant's claim 9 limitation of the formula (col. 1 lines 56-62). The coatings are useful as anti-graffiti coatings on metallic substrates or on organic coatings, where the application to vehicles is noted (col. 2 lines 25-32). Thus, it is the examiner's position that it would have been prima facie obvious to use the coatings of Mager's invention as a top coating in BASF to provide anti-graffiti properties to the prepared articles.

BASF, Kubitza, and Mager apply as above, where both BASF and Mager teach coating polymeric substrates (see Mager, col. 2 lines 25-32, stating that the coatings may be applied to plastics for improving mechanical strength). However, the references do not specify the polymeric substrates claimed by the applicant. Bayer teaches a similar top coating, where the coatings are

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known to improve the scratch resistance of polycarbonates and poly(methyl)methacrylates (p. 14 lines 10-14). Thus, it would have been prima facie obvious to apply the coatings of BASF and Mager to polycarbonates or poly(methyl)methacrylates to form transparent articles having improved mechanical strength and scratch resistance.

8. The BASF reference teaches that the coatings preferably contain solvents or diluents, including aromatics, naphthas, acetates, ethers, esters, ketones, ether esters, and mixtures thereof (p. 11 lines 8-11). Many of the claimed solvents fall are encompassed by the generic recitation of the reference; however, the specific compounds are not noted. *Ullmann's Encyclopedia of Industrial Chemistry* teaches the classes of solvents and some of the most commonly used solvents of those classes. The claimed solvents are noted as conventionally used solvents, and many of the descriptions of solvents teach that they are conventionally used in coatings and paints. It is the examiner's position that it would have been prima facie obvious to use the conventional solvents taught by *Ullmann's Encyclopedia of Industrial Chemistry* to form primers with equally improved adhesion promoting properties. Also, Lewis teaches silane-containing hardcoating compositions, where tail solvents are used to increase blush resistance, reduce internal stress, and improve adhesion to polycarbonate substrates (abstract). The most preferred tail solvent is diacetone alcohol, which is miscible with the siloxane backbone and increases adhesion to polycarbonate (col. 7 lines 2-30). Thus, it is the examiner's position that it would have been prima facie obvious to use diacetone alcohol in the primer compositions of the combined invention to improve adhesion of the silane-containing materials to polycarbonate.

Response to Arguments

9. In response to the applicant's arguments that the claimed solvents provide unexpectedly improved adhesion properties to the coatings, it is first noted that the results from the declaration do not compare with the closest prior art. The BASF reference teaches that solvents or diluents are preferably added, where several of the claimed solvents are generically encompassed. Ketones, acetates, aromatics, and esters are all mentioned. The declaration compares the claimed solvents with simple alcohol solvents which are not suggested by the reference.

10. Furthermore, the results are not commensurate in scope with the claims. Only one solvent mixture is exemplified. No single solvents are exemplified, and only two of the several claimed solvents are shown. The results for the specified solvent mixture cannot show unexpected results for the solvents not employed, like xylene, 1,4-dioxane, NMP, DMF, and DMSO. Also, the results do not suggest unexpected results for the whole class of polyurethane primers containing alkoxysilyl groups since only one type of primer is exemplified.

11. Still further, the prior art suggests at least diacetone alcohol as imparting improved adhesion to polycarbonate substrates. This suggests that the results are indeed expected by one of ordinary skill in the art.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melanie D. Bissett
Patent Examiner
Art Unit 1711

mdb